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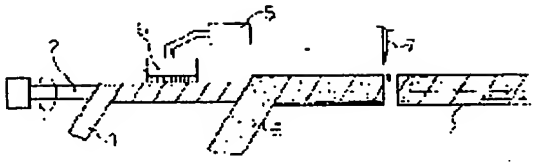
(54) COATING ROLLER AND METHOD FOR MANUFACTURING THE SAME

(57)Abstract:
PROBLEM TO BE SOLVED: To improve a coating roller constituted conventionally of a coating roller part and a roller grip part.
SOLUTION: The method for manufacturing a coating roller main body for applying a coating material on the whole surface of the coating roller while rotating the roller includes a process of forming a plastic tube by winding a thermoplastic resin sheet such as polypropylene(PP) on a shaft (mandrel) of the coating roller,, a process of forming a melt PP by extruding the melt PP film or the like on the upper surface of the thermoplastic resin sheet with an extruder after the process, a process of winding and attaching a brush cloth by winding the brush cloth such as pure wool, a synthetic fiber or the like on the plastic tube formed in the process and a process of cutting the plastic tube after the process by a prescribed length corresponding to the coating roller main body.



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[Claim(s)]

[Claim 1] The paint roller characterized by forming plastic tubing which comes to loop around the mandril of said paint roller section a thermoplastics sheet in the paint roller of the manual operation type which can be detached and attached, and which is constituted from the paint roller section and a roller bundle hand part, and extruding Melt PP in the shape of a film to the thermoplastics sheet surface of this plastic tubing, and winding a brush cloth, and coming to cut said plastic tubing to predetermined die length further.

[Claim 2] The paint roller according to claim 1 characterized by consisting of a rotation attachment component which contained for said fastener to the fastener which inserts the body of a paint roller of the preceding clause in a roller handle free [attachment and detachment], and the stowage which formed the half-object in the same configuration with the receipt half section by carrying out fitting fixing mutually, enabling free rotation, and was made to insert in said body of a paint roller.

[Claim 3] In the manufacture approach of the body of a paint roller painted while a coating is contained all over a paint roller and this roller is rotated The formation process of plastic tubing which comes to loop around the mandril (mandrel) of said paint roller thermoplastics sheets, such as polypropylene (PP), in the shape of a spiral (the shape of a spiral), The formation process of the melt PP which extrudes Melt PP in the shape of a film through an extrusion briquetting machine on the thermoplastics sheet top face after this process, The manufacture approach of the paint roller characterized by consisting of cutting processes of roller tubing of cutting plastic tubing after the winding process of the brush cloth which twists brush cloths, such as pure wool and a synthetic fiber, around plastic tubing formed at this process, and this process to the predetermined die length equivalent to the body of a paint roller.

[Claim 4] The manufacture approach of the paint roller according to claim 3 which comes to provide the process which inserts into end opening of plastic tubing the brush cloth which it left the

brush cloth to the end of plastic tubing of predetermined die length, and predetermined carried out die-length removal of the body of a paint roller manufactured by the manufacture approach of the preceding clause at shaft orientations, and remained further, and is fixed.

[Claim 5] A continuum is made. the brush cloth of the shape of a tape which formed in predetermined width of face the body of a paint roller manufactured by the manufacture approach according to claim 3 -- spral -- winding -- a roller -- Cut a continuum to necessary die length, consider as the body of a paint roller, and carry out sequential molding of the half-object of a rotation attachment component inserted in the body of a paint roller with the mold of the same configuration on the other hand, and the fastener inserted for a roller handle in the receipt half section of the half-object of 1, enabling free attachment and detachment is contained, enabling free rotation. this roller -- The manufacture approach of the paint roller according to claim 1 which carries out fitting fixing of other half-objects at the half-object of further 1, and carries out sequential formation of the rotation attachment component, and inserts a rotation attachment component in said body of a paint roller.

[Detailed Description of the Invention]

[0001]

[Field of the Invention] Although this invention relates to the paint roller of the manual operation type which can be detached and attached and which is constituted from the paint roller section and a bundle hand part, it relates to the paint roller used for painting including a coating all over a paint roller in detail, and rotating this roller, and its manufacture approach.

[0002]

[Description of the Prior Art] The conventional paint roller has the paint roller obtained by the manufacture approach and manufacture of the paint roller currently exhibited by JP,2-172563,A. The tubing formation process which forms tubing of predetermined die length with which this paint roller is

equivalent to two or more bodies of a roller at least, Like the brush cloth beam groundbreaking which winds the brush cloth made from pure wool, a synthetic fiber, etc. by said tubing formed with this tubing formation process The tubing cutting process of cutting said tubing wound in this brush cloth to the predetermined die length equivalent to said body of a roller, Leave said brush cloth for the end of said tubing of predetermined die length, and predetermined die length is removed to shaft orientations. It is the paint roller obtained by the manufacture approach of the paint roller characterized by providing the process which inserts said brush cloth which remained into end opening of said tubing, and is fixed to said tubing, and changing. Said tubing in the tubing formation process formed in endless, and said tubing formed in this endless one Moreover, pure wool, It leaves a brush cloth for the end of said tubing of the tubing cutting process like the brush cloth beam groundbreaking which winds around endless the brush cloth made from the synthetic fiber etc. of cutting said tubing wound in said brush cloth to predetermined die length, and predetermined die length. It is the paint roller obtained by the manufacture approach of the paint roller characterized by coming to provide the process which inserts into end opening of said tubing said brush cloth which carried out predetermined die-length removal and remained to shaft orientations, and is fixed to said tubing.

[0003] Two or more sheets of stencil paper 11 which infiltrated resin on the shaft (not shown) specifically first rotated as shown in drawing 3 is twisted in the shape of a spiral one by one, and a paper tube 12 is formed continuously. Under the present circumstances, it is for making predetermined reinforcement and a water resisting property give a paper tube 12 to have infiltrated resin into stencil paper 11, and a paper tube 12 usually makes stencil paper 11 a three - six sheet pile, and makes it a four-sheet pile in this example. Thus, the formed paper tube 12 passes through the inside of the tunnel type dryer 13, the resin with which it sank into stencil paper 11 in the process dries it, it becomes the firm paper tube 12, and a water

resisting property etc. is given again. Then, the brush cloth 14 made from pure wool, synthetic resin, etc. is twisted around a paper tube 12 in the shape of a spiral, and it is pasted. To the die length which needs 12 which pasted up this brush cloth 14, if sequential cutting is carried out by the cutter 15, the body 16 of a roller can be fabricated. Thus, the paint roller 8 of a configuration as shown in drawing 2 is obtained by forming.

[0004]

[Problem(s) to be Solved by the Invention] It has the technical problem which this invention tends to solve at the place which uses that whose material used for the paint roller obtained by this conventional process is the "paper tube core roller" which is the pipe (paper tube) of quality of paper as the "plastics core roller" which is synthetic-resin material.

[0005]

[Means for Solving the Problem] In the paint roller for manual operation types which can be detached and attached and which develops this invention in order to solve the technical problem like the above, and is constituted from the paint roller section and a roller bundle hand part Plastic tubing which comes to loop around the mandril of said paint roller section a thermoplastics sheet is formed. Extrude Melt PP in the shape of a film to the thermoplastics sheet surface of this plastic tubing, and a brush cloth is wound. Furthermore, the fastener which is in offer of the paint roller characterized by coming to cut said plastic tubing to predetermined die length, and inserts the aforementioned body of a paint roller in a roller handle free [attachment and detachment], It is in offer of the paint roller characterized by consisting of a rotation attachment component which contained for said fastener to the stowage which formed the half-object in the same configuration with the receipt half section by carrying out fitting fixing mutually, enabling free rotation, and was made to insert in said body of a paint roller.

[0006] Moreover, this invention is set to the manufacture approach of the body of a paint roller painted while a coating is contained all over a paint roller and this roller is rotated. The formation process of plastic tubing which comes to loop

around the mandril (mandrel) of said paint roller thermoplastics sheets, such as polypropylene (PP), in the shape of a spiral (the shape of a spiral), The formation process of the melt PP which extrudes Melt PP in the shape of a film through an extrusion briquetting machine on the thermoplastics sheet top face after this process, The winding process of the brush cloth which twists brush cloths, such as pure wool and a synthetic fiber, around plastic tubing formed at this process, It is in offer of the manufacture approach of the paint roller characterized by consisting of cutting processes of roller tubing of cutting plastic tubing after this process to the predetermined die length equivalent to the body of a paint roller. Moreover, leave a brush cloth to the end of said plastic tubing of predetermined die length, and predetermined die-length removal of the body of a paint roller manufactured by the aforementioned manufacture approach is carried out at shaft orientations. Furthermore, it is in offer of the manufacture approach of the paint roller according to claim 3 which comes to provide the process which inserts the brush cloth which remained into end opening of plastic tubing, and is fixed. A continuum is made. moreover, the brush cloth of the shape of a tape which formed in predetermined width of face the body of a paint roller manufactured by said manufacture approach -- spral -- winding -- a roller -- Cut a continuum to necessary die length, consider as the body of a paint roller, and carry out sequential molding of the half-object of a rotation attachment component inserted in the body of a paint roller with the mold of the same configuration on the other hand, and the fastener inserted for a roller handle in the receipt half section of the half-object of 1, enabling free attachment and detachment is contained, enabling free rotation. this roller -- It is in offer of the manufacture approach of the paint roller which carries out fitting fixing of other half-objects at the half-object of further 1, and carries out sequential formation of the rotation attachment component, and inserts a rotation attachment component in said body of a paint roller.

[0007]

[Embodiment of the Invention] In the paint roller of the manual operation type which can be detached and attached which constitutes the operation gestalt of this invention from the paint roller section and a roller bundle hand part Plastic tubing which comes to loop around the mandril of said paint roller section a thermoplastics sheet is formed. Extrude Melt PP in the shape of a film to the thermoplastics sheet surface of this plastic tubing, and a brush cloth is wound. Furthermore, the fastener which is the paint roller characterized by coming to cut said plastic tubing to predetermined die length, and inserts said body of a paint roller in a roller handle free [attachment and detachment], Said fastener is contained to the stowage which formed the half-object in the same configuration with the receipt half section by carrying out fitting fixing mutually, enabling free rotation. And since it is the paint roller characterized by consisting of a rotation attachment component made to insert in said body of a paint roller, rather than the paint roller obtained by the conventional process, a production process is simple and, moreover, can reduce a manufacturing cost.

[0008] Moreover, it sets to the manufacture approach of the paint-roller body painted while the operation gestalt of this invention contains a coating all over a paint roller and this roller is rotated. The formation process of plastic tubing which comes to loop around the mandril (mandrel) of said paint roller thermoplastics sheets, such as polypropylene (PP), in the shape of a spiral (the shape of a spiral), The formation process of the melt PP which extrudes Melt PP in the shape of a film through an extrusion briquetting machine on the thermoplastics sheet top face after this process, The winding process of the brush cloth which twists brush cloths, such as pure wool and a synthetic fiber, around plastic tubing formed at this process, It is the manufacture approach of the paint roller characterized by consisting of cutting processes of roller tubing of cutting plastic tubing after this process to the predetermined die length equivalent to the body of a paint roller. Moreover, leave a brush cloth to the end of said plastic tubing of predetermined

die length, and predetermined carries out die-length removal of the body of a paint roller manufactured by said manufacture approach at shaft orientations. Furthermore, it is the manufacture approach of the paint roller according to claim 3 which comes to provide the process which inserts the brush cloth which remained into end opening of plastic tubing, and is fixed. A continuum is made. furthermore, the brush cloth of the shape of a tape which formed in predetermined width of face the body of a paint roller manufactured by said manufacture approach -- spral -- winding -- a roller -- Cut a continuum to necessary die length, consider as the body of a paint roller, and sequential molding of the half-object of a rotation attachment component inserted in the body of a paint roller with the mold of the same configuration on the other hand is carried out. this roller -- And the fastener inserted for a roller handle in the receipt half section of the half-object of 1, enabling free attachment and detachment is contained, enabling free rotation. Since it is the manufacture approach of the paint roller which carries out fitting fixing of other half-objects, and carries out sequential formation of the rotation attachment component, and inserts a rotation attachment component in said body of a paint roller and the sheet of thermoplastics nature is used for the half-object of further 1 instead of the conventional stencil paper Moreover, molding processing of the roller for paint can be carried out so much for a short time at a process shorter than the conventional process.

[0009]

[Example] Hereafter, the example of this invention is explained according to a drawing etc. Drawing 1 shows the manufacture approach of the paint roller of this invention, and drawing 2 is a body of a paint roller acquired by the process. First, unlike the conventional paper tube core roller process, the body 4 of a paint roller acquired by the process of this invention has the description at the place which is a "plastics core roller process." Namely, the process which lays on top of a spiral and makes a paper tube while applying adhesives to 4-5 sheets of kraft paper into which phenol resin was infiltrated, in order

that the conventional paper tube core roller process may raise the thickness and reinforcement of ** paper tube, ** The process which applies adhesives to this paper tube and is twisted around that top face in the shape of a brush cloth (pile) spiral, It to a drying furnace for the process cut into a fixed dimension (2 meters), hardening of ** paper tube, and adhesives desiccation ** 160 degrees C / process put in for 2 hours, The process which cuts a roller into each size (3**5**6**7**9**12 inches/book), To manufacturing the body of a paint roller according to the process finished with a card clothing brush, as the process of the plastics core roller of this invention is shown in drawing 1 and drawing 2 ** The process which twists one polypropylene (PP) sheet around a mandrel (mandril) at a spiral, ** The process which applies melt PP extruded in the shape of a film on the sheet wound around the spiral (what diverted the extrusion briquetting machine which uses Melt PP by resin film manufacture), ** Manufacture the body of a paint roller according to the process which twists a brush cloth (pile) around a spiral, the process which cuts ** roller into each size (3**5**6**7**9**12 inches/book), and the process finished with ** card clothing brush. Therefore, since it extrudes Melt PP in the shape of a sheet in being that the number of sheets of the sheet used in both processes is different, and a plastics core and control of an extrusion-molding machine can adjust the thickness of a core, places producible [with PP sheet of one sheet] greatly differ. Although it is made PP sheet of one sheet in this example, a core firmer [it is also possible to make it two or more sheets, and] as a core becomes thick is obtained.

[0010] one [in addition,] in drawing -- PP sheet and 2 -- for the body of a paint roller, and 5, as for the sheet-like melt PP and 7, an extruding press machine and 6 are [a mandril and 3 / a brush cloth and 4 / a cutter and 8] the paint-roller sections. Next, the condition of having attached in the bundle hand part the paint-roller section from which drawing 7 was obtained by the process of this invention from drawing 4 , and its attachment-and-detachment condition are shown. As first

shown in drawing 4 and drawing 5 , the roller type paint implement A inserts the roller grasping section 10 in the paint-roller section 8, and becomes it, and this paint-roller section 8 contains a fastener 9 to the stowage which constituted mutually the half-object of the same configuration which has the receipt half section contained for the fastener 9 which inserts the roller grasping section 10 free [attachment and detachment], and this fastener 9, enabling free rotation from carrying out fitting fixing. Moreover, drawing 6 inserts in the roller grasping section 10 which has the rotation attachment component 9 of a squirrel cage type, and forms the roller type paint implement A, and this rotation attachment component 9 inserts in about 4-6, and comes to fix the cartridge material B which has a tip side and end face side bearing ****, and is constituted from the round bar or a plate among these. In addition, since drawing 7 is deformation of the structure shown in drawing 5 and drawing 6 , explanation is omitted.

[0011] As mentioned above, adhesives are applied in the shape of [which was made while twisting the stencil paper into which the resin of the conventional process was infiltrated in the shape of a spiral and making the paper tube endlessly] a paper tube. Twist the brush cloth made of synthetic resin (pile) after that, and say that it cuts into predetermined die length. Carry out fabrication by the so-called all-in-one method, and it receives putting into a drying furnace and manufacturing the body of a paint roll, in order to strengthen the paper tube of the paint roller which cut further and was done. Although this invention process of manufacture with the above-mentioned spiral method is the same, it has the big difference at the point which uses the thermoplastics which was made to carry out melt instead of the stencil paper into which resin was infiltrated to the point using the sheet of thermoplastics nature instead of adhesives, and was made into the shape of a film.

[0012]

[Effect of the Invention] In the paint roller of the manual operation type which can be detached and attached which constitutes this invention from the paint roller section and

a roller bundle hand part Plastic tubing which comes to loop around the mandril of said paint roller section a thermoplastics sheet is formed. Extrude Melt PP in the shape of a film to the thermoplastics sheet surface of this plastic tubing, and a brush cloth is wound. Furthermore, the fastener which is the paint roller characterized by coming to cut said plastic tubing to predetermined die length, and inserts said body of a paint roller in a roller handle free [attachment and detachment], the rotation attachment component which contained for said fastener to the stowage which formed the half-object in the same configuration with the receipt half section by carrying out fitting fixing mutually, enabling free rotation, and was made to insert in said body of a paint roller -- since -- it is the paint roller characterized by becoming.

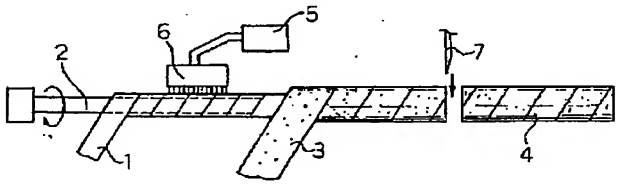
[0013] Moreover, this invention is set to the manufacture approach of the body of a paint roller painted while a coating is contained all over a paint roller and this roller is rotated. The formation process of plastic tubing which comes to loop around the mandril (mandrel) of said paint roller thermoplastics sheets, such as polypropylene (PP), in the shape of a spiral (the shape of a spiral), The formation process of the melt PP which extrudes Melt PP in the shape of a film through an extrusion briquetting machine on the thermoplastics sheet top face after this process, The winding process of the brush cloth which twists brush cloths, such as pure wool and a synthetic fiber, around plastic tubing formed at this process, It is the manufacture approach of the paint roller characterized by consisting of cutting processes of roller tubing of cutting plastic tubing after this process to the predetermined die length equivalent to the body of a paint roller. Moreover, leave a brush cloth to the end of said plastic tubing of predetermined die length, and predetermined carries out die-length removal of the body of a paint roller manufactured by the aforementioned manufacture approach at shaft orientations. Furthermore, it is the manufacture approach of the paint roller which comes to provide the process which inserts the brush cloth which remained into end opening of plastic tubing, and is fixed. A continuum

is made. moreover, the brush cloth of the shape of a tape which formed in predetermined width of face the body of a paint roller manufactured by said manufacture approach -- spral -- winding -- a roller -- Cut a continuum to necessary die length, consider as the body of a paint roller, and carry out sequential molding of the half-object of a rotation attachment component inserted in the body of a paint roller with the mold of the same configuration on the other hand, and the fastener inserted for a roller handle in the receipt half section of the half-object of 1, enabling free attachment and detachment is contained, enabling free rotation. this roller -- Since it is the manufacture approach of the paint roller which carries out fitting fixing of other half-objects at the half-object of further 1, and carries out sequential formation of the rotation attachment component, and inserts a rotation attachment component in said body of a paint roller, it has the effectiveness of following many. Since it is not necessary to strengthen a paper tube with a drying furnace and becomes compaction of a process, a manufacturing cost can make it decrease by using the sheet of thermoplastics nature instead of the stencil paper into which A and resin were infiltrated. Since I and the thermoplastics (polypropylene polyethylene) which melted in high temperature can work at the process of the last finish brush after getting cold rapidly, and it becoming hard and cutting a roller into predetermined die length shortly after it is exposed to ordinary temperature, the time cost of manufacture can make it reduce sharply. It can be made a roller very high [of solvent resistance] by using the thermoplastics which carried out melt as adhesives although there were problems, like a pile separates that adhesives usually tend to be invaded by the organic solvent while the problem on an environment to generate formalin when it destroys by fire, since the resin into which U and stencil paper are infiltrated had common phenol resin (thermosetting resin) carries out raw. The thickness of a core can be adjusted free by replacing the coverage (film-like thickness) of E and melted thermoplastics with.

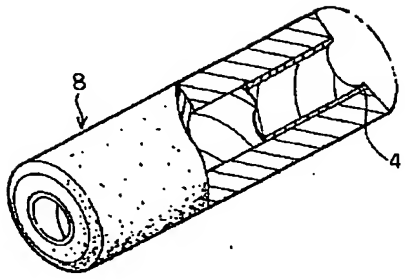
[Brief Description of the Drawings]

[Drawing 1] The explanation schematic diagram having shown the process of a paint roller which consists of this invention.
[Drawing 2] The body of a paint roller acquired by the process of drawing 1 is a sectional view a part.
[Drawing 3] The conventional process over this invention process and its contrast Fig. of drawing 1 .
[Drawing 4] The perspective view of the roller type paint implement which used this invention.
[Drawing 5] The expanded sectional view of the paint-roller section shown in drawing 4 .
[Drawing 6] Other example Figs. of the paint-roller section shown in drawing 4 .
[Drawing 7] Other example Figs. of the paint-roller section shown in drawing 4 .
[Description of Notations]
1 PP Sheet 2 Mandril
3 Brush Cloth 4 Body of Paint Roller
5 Extruding Press Machine 6 Sheet-like Melt PP
7 Cutter 8 Paint-Roller Section
9 Rotation Attaching Part 10 Roller Grasping Section
11 Stencil Paper 12 Paper Tube
13 Drier 14 Brush Cloth
15 Cutter 16 Body of Paint Roller
A Roller type paint implement B Cartridge material

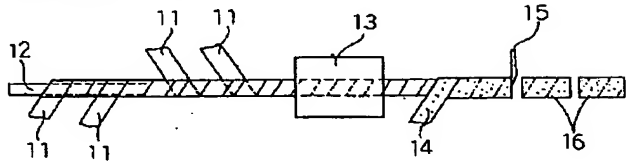
[Drawing 1]



[Drawing 2]



[Drawing 3]



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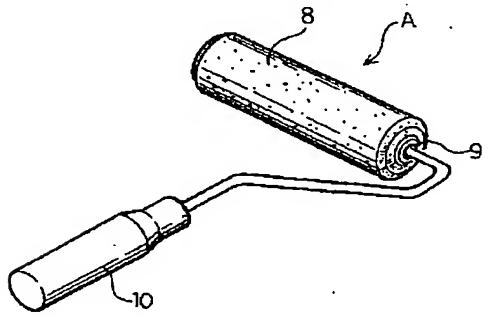
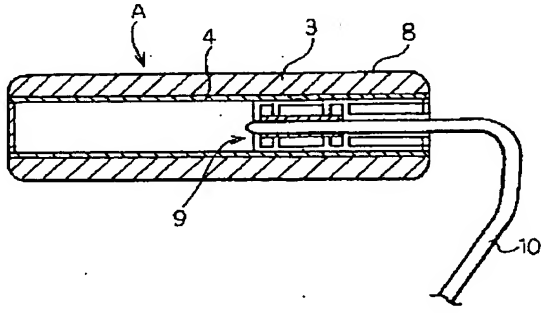
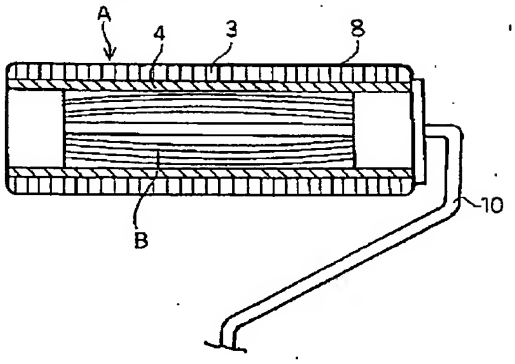


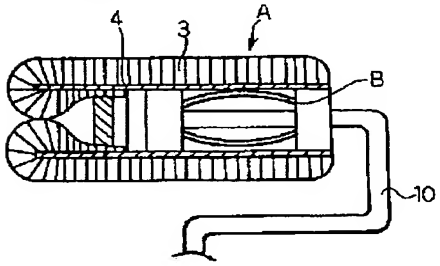
[Drawing 5]



[Drawing 6]



[Drawing 7]



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Ｂ２９Ｃ　69/00		Ｂ２９Ｃ　69/00	４Ｆ２１３
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Ｂ２９Ｌ　31:32		Ｂ２９Ｌ　31:32	

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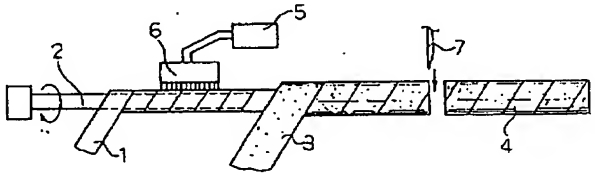
4F213 AA11 AC03 AD16 AD18 AG03
AH04 WA06 WA14 WA43 WA53
WA63 WB01 WB18

(54)【発明の名称】　塗装用ローラとその製法

(57)【要約】
【課題】　従来の塗装ローラ部とローラ把手部とから構成される塗装ローラを改良する。
【解決手段】　塗装ローラの全面に塗料を含有して該ローラを回転させながら塗装する塗装ローラ本体の製造方法において、前記塗装ローラの心棒（マンドル）にポリプロピレン（ＰＰ）等の熱可塑性樹脂シートを螺線状（スパイラル状）に巻装してなるプラスチック管の形成工程と、該工程後に熱可塑性樹脂シート上面に押出成型機を介してメルトＰＰをフィルム状に押し出すメルトＰＰの形成工程と、該工程で形成されたプラスチック管に純毛・合成繊維等のブラシ布を巻き付けるブラシ布の巻着工程と、該工程後のプラスチック管を塗装ローラ本体に相当する所定の長さに切断するローラ管の切断工程とから構成されることを特徴とする塗装用ローラとその製法の提供。



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【特許請求の範囲】

【請求項１】　塗装ローラ部とローラ把手部とから構成する着脱自在の手動操作式の塗装用ローラにおいて、前記塗装ローラ部の心棒に熱可塑性樹脂シートを巻装してなるプラスチック管を設け、該プラスチック管の熱可塑性樹脂シート面にメルトＰＰをフィルム状に押し出しかつブラシ布を巻着し、更に前記プラスチック管を所定の長さに切断してなることを特徴とする塗装用ローラ。

【請求項２】　前項の塗装ローラ本体をローラハンドルに着脱自在に挿着する固定具と、収納半部を有した同一形状に半体を相互に嵌合固着することで形成した収納部に前記固定具を回動自在に収納し、かつ前記塗装ローラ本体内に挿着させた回転保持部材とからなることを特徴とする請求項１記載の塗装用ローラ。

【請求項３】　塗装ローラの全面に塗料を含有して該ローラを回転させながら塗装する塗装ローラ本体の製造方法において、前記塗装ローラの心棒（マンドレル）にポリプロピレン（ＰＰ）等の熱可塑性樹脂シートを螺線状（スパイラル状）に巻装してなるプラスチック管の形成工程と、該工程後に熱可塑性樹脂シート上面に押出成型機を介してメルトＰＰをフィルム状に押し出すメルトＰＰの形成工程と、該工程で形成されたプラスチック管に純毛・合成繊維等のブラシ布を巻き付けるブラシ布の巻着工程と、該工程後のプラスチック管を塗装ローラ本体に相当する所定の長さに切断するローラ管の切断工程とから構成されることを特徴とする塗装用ローラの製造方法。

【請求項４】　前項の製造方法で製造された塗装ローラ本体を所定の長さのプラスチック管の一端にブラシ布を残しかつ軸方向に所定の長さ除去し、更に残留したブラシ布をプラスチック管の一端開口に折り込み固定する工程とを具備してなる請求項３記載の塗装用ローラの製造方法。

【請求項５】　請求項３記載の製造方法で製造された塗装ローラ本体を所定幅に形成したテープ状のブラシ布をラセン状に巻いてローラ連続体を作り、該ローラ連続体を所要の長さに切断して塗装ローラ本体とし、一方同一形状の型にて塗装ローラ本体に挿着する回転保持部材の半体を順次成型しかつ一の半体の収納半部にローラハンドルを着脱自在に挿着する固定具を回動自在に収納し、更に一の半体に他の半体を嵌合固着して回転保持部材を順次形成しかつ前記塗装ローラ本体に回転保持部材を挿着する請求項１記載の塗装用ローラの製造方法。

【発明の詳細な説明】

【０００１】

【発明の属する技術分野】本発明は、塗装ローラ部と把手部とから構成する着脱自在の手動操作式の塗装用ローラに関するが、詳しくは塗装ローラの全面に塗料を含ませて該ローラを回転させながら塗装するのに用いる塗装用ローラとその製造方法に関するものである。

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【０００２】

【従来の技術】従来の塗装用ローラは、特開平２－１７２５６３号で公開されている塗装用ローラの製造方法とその製造で得られた塗装ローラがある。この塗装用ローラは、少なくとも複数のローラ本体に相当する所定長さの管を形成する管形成工程と、該管形成工程で形成された前記管に純毛、合成繊維等で作られたブラシ布を巻着するブラシ布巻着工程と、該ブラシ布を巻着された前記管を前記ローラ本体に相当する所定長さに切断する管切断工程と、所定長さの前記管の一端を前記ブラシ布を残して軸方向に所定長さを除去し、残留した前記ブラシ布を前記管の一端開口に折り込み前記管に固定する工程とを具備して成ることを特徴とする塗装用ローラの製造方法で得られる塗装ローラであり、また前記管をエンドレスに形成する管形成工程と該エンドレスに形成された前記管に純毛、合成繊維等で作られたブラシ布をエンドレスに巻着するブラシ布巻着工程と前記ブラシ布を巻着された前記管を所定長さに切断する管切断工程と所定長さの前記管の一端をブラシ布を残して軸方向に所定長さ除去し残留した前記ブラシ布を前記管の一端開口に折り込み前記管に固定する工程とを具備してなることを特徴とする塗装用ローラの製造方法で得られる塗装用ローラである。

【０００３】具体的には、図３に示すようにまず回転するシャフト（図示せず）上に樹脂を含浸させた複数枚の原紙１１を順次スパイラル状に巻き付けて紙管１２を連続的に形成する。この際、原紙１１に樹脂を含浸させたのは紙管１２に所定の強度及び耐水性を付与させるためであり、また紙管１２は通常原紙１１を３枚～６枚重ねとし本実施例では４枚重ねとする。このように形成された紙管１２は、トンネルタイプの乾燥機１３の中を通過し、その過程で原紙１１に含浸された樹脂が乾燥して強固な紙管１２となりまた耐水性等も付与される。このあと、紙管１２に純毛や合成樹脂等で作られたブラシ布１４をスパイラル状に巻き付け接着する。このブラシ布１４を接着された１２を必要とする長さにカッター１５にて順次切断すればローラ本体１６を成形することができる。このようにして形成することによって図２に示すような形状の塗装用ローラ８が得られる。

【０００４】

【発明が解決しようとする課題】かかる従来製法で得られる塗装用ローラに用いられる素材が、紙質のパイプ（紙管）である「紙管コアローラ」であるものを合成樹脂材である「プラスチックコアローラ」にするところに、本発明が解決しようとする課題を有する。

【０００５】

【課題を解決するための手段】本発明は上記の如き課題を解決するために開発したものであって、塗装ローラ部とローラ把手部とから構成する着脱自在の手動操作式用の塗装用ローラにおいて、前記塗装ローラ部の心棒に熱

可塑性樹脂シートを巻装してなるプラスチック管を設け、該プラスチック管の熱可塑性樹脂シート面にメルトＰＰをフィルム状に押し出しかつブラシ布を巻着し、更に前記プラスチック管を所定長さに切断してなることを特徴とする塗装用ローラの提供にあり、また前記の塗装ローラ本体をローラハンドルに着脱自在に挿着する固定具と、収納半部を有した同一形状に半体を相互に嵌合固着することで形成した収納部に前記固定具を回動自在に収納し、かつ前記塗装ローラ本体内に挿着させた回転保持部材とからなることを特徴とする塗装用ローラの提供にある。

【０００６】また本発明は、塗装ローラの全面に塗料を含有して該ローラを回転させながら塗装する塗装ローラ本体の製造方法において、前記塗装ローラの心棒（マンドレル）にポリプロピレン（ＰＰ）等の熱可塑性樹脂シートを螺線状（スパイラル状）に巻装してなるプラスチック管の形成工程と、該工程後に熱可塑性樹脂シート上面に押出成型機を介してメルトＰＰをフィルム状に押し出すメルトＰＰの形成工程と、該工程で形成されたプラスチック管に純毛・合成繊維等のブラシ布を巻き付けるブラシ布の巻着工程と、該工程後のプラスチック管を塗装ローラ本体に相当する所定長さに切断するローラ管の切断工程とから構成されることを特徴とする塗装用ローラの製造方法の提供にあり、また前記の製造方法で製造された塗装ローラ本体を所定の長さの前記プラスチック管の一端にブラシ布を残しかつ軸方向に所定長さ除去し、更に残留したブラシ布をプラスチック管の一端開口に折り込み固定する工程とを具備してなる請求項３記載の塗装用ローラの製造方法の提供にあり、また前記製造方法で製造された塗装ローラ本体を所定幅に形成したテープ状のブラシ布をラセン状に巻いてローラ連続体を作り、該ローラ連続体を所要の長さに切断して塗装ローラ本体とし、一方同一形状の型にて塗装ローラ本体に挿着する回転保持部材の半体を順次成型しかつ一の半体の収納半部にローラハンドルを着脱自在に挿着する固定具を回動自在に収納し、更に一の半体に他の半体を嵌合固着して回転保持部材を順次形成しかつ前記塗装ローラ本体に回転保持部材を挿着する塗装用ローラの製造方法の提供にある。

【０００７】

【発明の実施の形態】本発明の実施形態は、塗装ローラ部とローラ把手部とから構成する着脱自在の手動操作式の塗装用ローラにおいて、前記塗装ローラ部の心棒に熱可塑性樹脂シートを巻装してなるプラスチック管を設け、該プラスチック管の熱可塑性樹脂シート面にメルトＰＰをフィルム状に押し出しかつブラシ布を巻着し、更に前記プラスチック管を所定の長さに切断してなることを特徴とする塗装用ローラであり、また前記塗装ローラ本体をローラハンドルに着脱自在に挿着する固定具と、収納半部を有した同一形状に半体を相互に嵌合固着することで形成した収納部に前記固定具を回動自在に収納し、かつ前記塗装ローラ本体内に挿着させた回転保持部材とからなることを特徴とする塗装用ローラであるから、従来の製法で得られる塗装用ローラよりも製造工程が簡便でしかも製造コストを低減することができる。

【０００８】また本発明の実施形態は、塗装ローラの全面に塗料を含有して該ローラを回転させながら塗装する塗装用ローラ本体の製造方法において、前記塗装ローラの心棒（マンドレル）にポリプロピレン（ＰＰ）等の熱可塑性樹脂シートを螺線状（スパイラル状）に巻装してなるプラスチック管の形成工程と、該工程後に熱可塑性樹脂シート上面に押出成型機を介してメルトＰＰをフィルム状に押し出すメルトＰＰの形成工程と、該工程で形成されたプラスチック管に純毛・合成繊維等のブラシ布を巻き付けるブラシ布の巻着工程と、該工程後のプラスチック管を塗装ローラ本体に相当する所定の長さに切断するローラ管の切断工程とから構成されることを特徴とする塗装用ローラの製造方法であり、また前記製造方法で製造された塗装ローラ本体を所定の長さの前記プラスチック管の一端にブラシ布を残しかつ軸方向に所定の長さ除去し、更に残留したブラシ布をプラスチック管の一端開口に折り込み固定する工程とを具備してなる請求項３記載の塗装用ローラの製造方法であり、また更に前記製造方法で製造された塗装ローラ本体を所定幅に形成したテープ状のブラシ布をラセン状に巻いてローラ連続体を作り、該ローラ連続体を所要の長さに切断して塗装ローラ本体とし、一方同一形状の型にて塗装ローラ本体に挿着する回転保持部材の半体を順次成型し、かつ一の半体の収納半部にローラハンドルを着脱自在に挿着する固定具を回動自在に収納し、更に一の半体に他の半体を嵌合固着して回転保持部材を順次形成しかつ前記塗装ローラ本体に回転保持部材を挿着する塗装用ローラの製造方法であるから、従来の原紙に代わり熱可塑性樹脂性のシートを使用しているので、従来の製法よりも短い工程でしかも短時間に多量に塗装用ローラを成型加工することができる。

【０００９】

【実施例】以下、図面等に従って本発明の実施例について説明する。図１は本発明の塗装用ローラの製造方法を示したものであり、図２はその製法により得られる塗装ローラ本体である。まず、本発明の製法により得られる塗装ローラ本体４は、従来の紙管コアローラ製法と異り「プラスチックコアローラ製法」であるところに特徴を有している。すなわち、従来の紙管コアローラ製法は、①紙管の厚みと強度を上げるためフェノール樹脂を含浸させたクラフト紙４～５枚に接着剤を塗布しながらスパイラルに重ねあわせて紙管を作る工程と、②この紙管に接着剤を塗布してその上面にブラシ布（パイル）スパイラル状に巻きつける工程と、③それを一定寸法（２メートル）にカットする工程と、④紙管の硬化と接着剤乾燥

のため乾燥炉に１６０℃／２時間入れる工程と、ローラーを各サイズ（３・５・６・７・９・１２インチ／本）にカットする工程と、針布ブラシにて仕上げる工程とにより塗装ローラ本体を製造するのに対し、本発明のプラスチックコアローラーの製法は図１と図２に示すように、①ポリプロピレン（ＰＰ）シート１枚をマンドレル（心棒）にスパイラルに巻き付ける工程と、②スパイラルに巻かれたシート上にフィルム状に押し出したメルトＰＰを塗布（メルトＰＰは樹脂フィルム製造で使う押し出し成型機を流用したもの）する工程と、③ブラシ布（パイル）をスパイラルに巻き付ける工程と、④ローラーを各サイズ（３・５・６・７・９・１２インチ／本）にカットする工程と、⑤針布ブラシにて仕上げる工程とにより塗装ローラ本体を製造するものである。従って、両製法において使用するシートの枚数が違うのとプラスチックコアの場合にはメルトＰＰをシート状に押し出すため押し出し成形機の調整によりコアの厚みを調整できるので１枚のＰＰシートで生産できるところが大いに異っている。本実施例では１枚のＰＰシートにしているが、２枚以上にすることも可能でありコアが厚くなればなるほど強固のコアが得られる。

【００１０】なお、図中１はＰＰシート、２は心棒、３はブラシ布、４は塗装ローラ本体、５は押出成形機、６はシート状メルトＰＰ、７はカッター、８は塗装用ローラ部である。次に図４から図７までは、本発明の製法により得られた塗装用ローラ部を把手部に取り付けた状態とその着脱状態を示したものである。まず図４と図５に示すようにローラ式塗装具Ａは、塗装用ローラ部８にローラ把持部１０を挿着してなり、この塗装用ローラ部８は、ローラ把持部１０を着脱自在に挿着する固定具９と、この固定具９を回動自在に収納する収納半部を有する同一形状の半体を相互に嵌合固着することで構成した収納部に固定具９を収納する。また、図６はカゴ形の回転保持部材９を有するローラ把持部１０を嵌め込んでローラ式塗装具Ａを形成し、この回転保持部材９は先端側及び基端側軸受及びを有しこれらの間に丸棒又は板で構成する弾材Ｂを４～６本程度を嵌め込んで固定してなる。なお、図７は図５と図６に示した構造の変形であるので説明は省略する。

【００１１】以上のように、従来製法の樹脂を含浸させた原紙をスパイラル状に巻き付けて紙管をエンドレスに作りながらできた紙管状に接着剤を塗布し、その後に合成樹脂製のブラシ布（パイル）を巻き付けて所定の長さにカットするという、いわゆるオールインワン方式で成形加工し、更にカットしてできあがったペイントローラーの紙管を強固にするため乾燥炉に入れて塗装ロール本体を製造するに対して、本発明製法は上記のスパイラル方式での製造は同じであるが樹脂を含浸させた原紙の代わりに熱可塑性樹脂性のシートを使う点と、接着剤の代わりにメルトさせフィルム状にした熱可塑性樹脂を使用する点に大きな相異点を有している。

【００１２】

【発明の効果】本発明は、塗装ローラ部とローラ把手部とから構成する着脱自在の手動操作式の塗装用ローラにおいて、前記塗装ローラ部の心棒に熱可塑性樹脂シートを巻装してなるプラスチック管を設け、該プラスチック管の熱可塑性樹脂シート面にメルトＰＰをフィルム状に押し出しかつブラシ布を巻着し、更に前記プラスチック管を所定の長さに切断してなることを特徴とする塗装用ローラであり、また前記塗装ローラ本体をローラハンドルに着脱自在に挿着する固定具と、収納半部を有した同一形状に半体を相互に嵌合固着することで形成した収納部に前記固定具を回動自在に収納し、かつ前記塗装ローラ本体内に挿着させた回転保持部材と、からなることを特徴とする塗装用ローラである。

【００１３】また本発明は、塗装ローラの全面に塗料を含有して該ローラを回転させながら塗装する塗装ローラ本体の製造方法において、前記塗装ローラの心棒（マンドレル）にポリプロピレン（ＰＰ）等の熱可塑性樹脂シートを螺線状（スパイラル状）に巻装してなるプラスチック管の形成工程と、該工程後に熱可塑性樹脂シート上面に押出成型機を介してメルトＰＰをフィルム状に押し出すメルトＰＰの形成工程と、該工程で形成されたプラスチック管に純毛・合成繊維等のブラシ布を巻き付けるブラシ布の巻着工程と、該工程後のプラスチック管を塗装ローラ本体に相当する所定の長さに切断するローラ管の切断工程とから構成されることを特徴とする塗装用ローラの製造方法であり、また前記の製造方法で製造された塗装ローラ本体を所定の長さの前記プラスチック管の一端にブラシ布を残しかつ軸方向に所定の長さ除去し、更に残留したブラシ布をプラスチック管の一端開口に折り込み固定する工程とを具備してなる塗装用ローラの製造方法であり、また前記製造方法で製造された塗装ローラ本体を所定幅に形成したテープ状のブラシ布をラセン状に巻いてローラ連続体を作り、該ローラ連続体を所要の長さに切断して塗装ローラ本体とし、一方同一形状の型にて塗装ローラ本体に挿着する回転保持部材の半体を順次成型しかつ一の半体の収納半部にローラハンドルを着脱自在に挿着する固定具を回動自在に収納し、更に一の半体に他の半体を嵌合固着して回転保持部材を順次形成しかつ前記塗装ローラ本体に回転保持部材を挿着する塗装用ローラの製造方法であるから、次のような多くの効果を有する。ア、樹脂を含浸させた原紙の代わりに熱可塑性樹脂性のシートを使うことにより、乾燥炉で紙管を強固にする必要がなく工程の短縮となるので製造コストが低減させることができる。イ、また、高熱で溶けた熱可塑性樹脂（ポリプロピレン・ポリエチレン）は常温にさらされると急激に冷えて固まり、所定の長さにローラーをカットした後すぐに最終仕上ブラシの工程にて作業が可能であるから、製造の時間的コストが大幅に削減

させることができる。ウ、また、原紙に含浸させる樹脂はフェノール樹脂（熱硬化性樹脂）が一般的であるから、焼却した時にホルマリンが発生するための環境上の問題が生するとともに、接着剤は通常有機溶剤に侵されやすくパイルが剥がれるなどの問題があったが接着剤としてメルトさせた熱可塑性樹脂を使用することにより、非常に耐溶剤性の高いローラにすることができる。エ、溶けた熱可塑性樹脂の塗布量（フィルム状の厚み）を代えることで、コアの厚みを自在に調整することができる。

【図面の簡単な説明】

【図１】本発明からなる塗装用ローラの製法を示した説明概要図。

【図２】図１の製法により得られた塗装ローラ本体の一部断面図。

【図３】図１の本発明製法に対する従来製法とその対比図。

【図４】本発明を使用したローラ式塗装具の斜視図。

＊【図５】図４に示した塗装用ローラ部の拡大断面図。

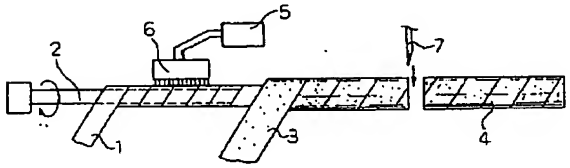
【図６】図４に示した塗装用ローラ部の他の実施例図。

【図７】図４に示した塗装用ローラ部の他の実施例図。

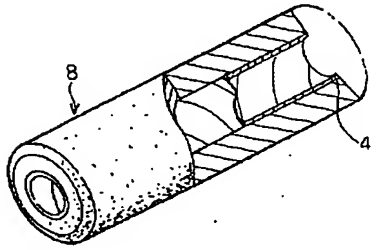
【符号の説明】

１　ＰＰシート	２　心棒
３　ブラシ布	４　塗装ローラ本体
５　押出成形機	６　シート状メルトＰＰ
７　カッター	８　塗装用ローラ部
９　回転保持部	１０　ローラ把持部
１１　原紙	１２　紙管
１３　乾燥機	１４　ブラシ布
１５　カッター	１６　塗装ローラ本体
Ａ　ローラ式塗装具	Ｂ　弾材

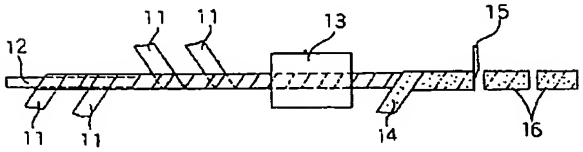
【図１】



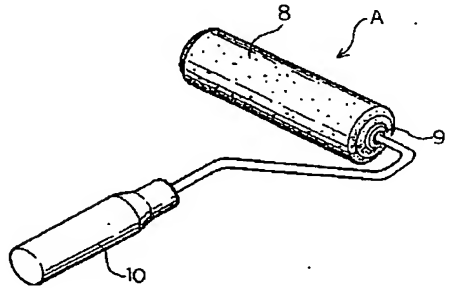
【図２】



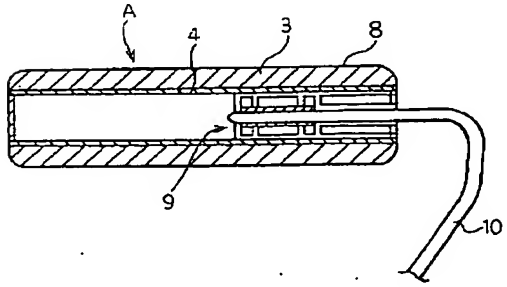
【図３】



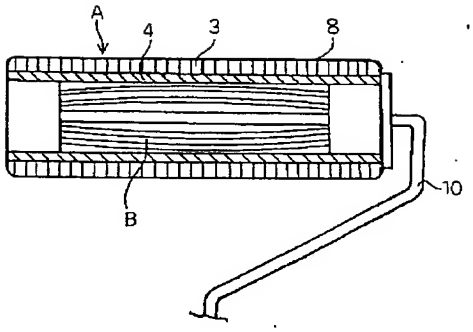
【図４】



【図５】



【図６】



【図７】